DOCUMENT RESUME

ED 425 409 CG 028 979

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TITLE Life-Long Learning: Learning To Be Productive.
PUB DATE 1997-07-00
NOTE 8p.; In: China-U.S. Conference on Education. Collected Papers. (Beijing, People's Republic of China, July 9-13, 1997); see CG 028 968.
PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; Children; Continuing Education; Global Approach; *Information Technology; *Lifelong Learning; Nontraditional Education; *Productive Thinking; *Teacher Role
IDENTIFIERS *Information Age

ABSTRACT

This paper describes global changes in education to be expected as a result of the expansion of information technology. Technology expands access to alternate sources of information and changes the approach to teaching and learning. A case is made for a lifelong approach to learning and cites certain specific factors that should be included. The utilization of information networks and services demands that education be ongoing, and forces curricula to become broader and more flexible. Reasons for educating the emotional intelligence are discussed. The Partnership Foundation's educational lifelong learning program, designed to provide for continuous progress in a multiage environment, is presented. The program includes sequences in communications, mathematics, environmental settings, and cultural development. As a manager of information rather than simply the presenter of information, the teacher must design learning challenges that expand the student's ability to learn from a variety of different sources. The teacher's role shifts toward that of facilitator, mentor, and collaborator. Once a basic foundation has been established, learning will be based on enhancing people's skills in relation to understanding and applicability. Learning to be productive will result in new products with which to relate to new global markets. (EMK)

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ED 425 409

Chapter Eleven

Life-Long Learning: Learning to be Productive

Terry K. Oester & Dawn E. Oester

Education is a way to achieve goals of productivity, of efficiency. It is a mechanism for growth by which accomplishments are measured and personal, community, and national goals are achieved. It has helped build infrastructure, powered factories, and developed transportation systems. But, with technology development, education is about to undergo a transformation which will help increase productivity even further.

With the rapid approach of the information age, technology will provide access to information in multiples of what print information has provided. People will be able to receive and present information and implement ideas like never before in history. It will create a worldwide Industrial Revolution, transforming the way we live and work.

To meet the challenges that technology will impose, people will have to improve their skills. The utilization of information networks and services will demand that education be on-going. However, education will need to be more than experiencing information forple were categorized and segmented for their learning opportunities.

The above scenario may be oversimplified. However, the principle remains the same. The scholar, educator, teacher, was the one who controlled the information of what was to be learned. The educator presented the material, only to have it recited or repeated in a different format to measure a student's understanding. If individuals did not understand the material due to their own capacities or the way in which the material was presented, it was considered to be the student's problem.

From this programmed learning came evaluation, followed by the measurement of intelligence.It was the "intelligence quotient" that set standards upon which others were measured. If those assessment standards were not met, the individual was soon categorized as a non- or under-achiever.

For those individuals who could take tests and restate the information provided by the scholar, meeting objectives was not difficult. However, other forms of intelligence were disregarded in the measurement of learning. Recently, information regarding how people learn has been developed. Pioneered by people such as Daniel Goleman, Stanley I. Greenspan, Renate Caine, John Abbott, and others, teaching to the functioning of the brain is becoming recognized in relation to assessment, especially as it relates to

CG028979

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applicability and achievements.

One of those pioneers, Daniel Goleman, has conducted significant research in teaching to the emotional intelligence. Goleman, author of *Emotional Intelligence: Why It Can Matter More Than IQ*, states, "Emotional intelligence is a different way of being smart. It includes knowing what your feelings are and using your feelings to make good decisions in life." However, he further states, "Both types of intelligence are important, but they're important in different ways. IQ contributes, at best, about 20 percent to the factors that determine life's success. That leaves 80 percent to everything else" (O'Neil, September 1996, p.6).

There are two significant reasons for educating the emotional intelligence. First of all, not everyone is going to end up being what has been evaluated as a model student, the one who can recite information back. The information age will allow people to pursue their own directions through many phases of information. The educational process then will focus on self-development, to improve one's skills and capacities no matter what direction the individual decides to pursue.

Our emotions are what motivate us, and what deter us. By developing strong emotional skills, an individual is able to perform at higher levels with the ability to present concepts and take a leadership role in bringing those concepts to fruition. Educating the emotional intelligence produces the initiative, inventiveness, and readaptability needed for life's challenges. It is these three capacities that will determine an individual's implementation of applicability and productivity.

Second, if education and learning are synonymous terms, then the process should lead to understanding and the utilization of that understanding. The goal of learning should be the implementation of that understanding and, in most environments, that implementation should relate to a societal value. The importance of emotional intelligence then reflects back to having the ability to understand more than facts and figures. It relates to the ability to process information and apply that information for individual, community, and national development.

To focus the educational experience on emotional intelligence is to reach the individual's mechanism for learning. The emotional intelligence is how individuals perceive their world and the elements within their environment. To ignore such a vital area is to prevent the individual from developing the capacities that are essential to learning and productivity.

The emphasis on emotional intelligence should not circumvent the need to develop one's cognitive skills. They are both important in the development of an individual. But to just understand and recite facts does not lead to applicability .

The Partnership Foundation's educational life-long learning program is based on three primary elements:

1. that assessments of an individual must be based on the ability to apply information;
2. that curriculum is continuous and represents a world perspective

for developing life management skills;

3. that the educator of the future will be a manager of information.

Unlike many applications where evaluation, curriculum development, and teacher training are developed independently, the Foundation's program is developed congruently, providing a consistent and continuing learning process.

The Learning Product being developed by The Partnership Foundation offers a type of assessment for primary and secondary grades. Based on performance or one's ability to learn, the learning product seeks to identify factors which affect and effect student learning.

By monitoring the results of these assessments and applying those results to the individual learner, our goal is to determine how these factors, when multiplied together, affect the process of learning for that individual. Such knowledge should result in adaptations which increase the learning capacity of each student whether those capacities are related to agriculture, industry, service, or other sectors.

The Learning Product is based on the understanding that everyone does not learn at the same level. Pace, understanding of material, cultural and environmental settings, all affect one's learning. The learning product is also based on the understanding that not everyone is going to be a corporate executive, an engineer, or a doctor. People have different desires, capabilities, and skills and their level of understanding of material differs.

The Learning Product focuses on factors which affect student learning. These factors include emotional development, life management skills, adaptation skills, and learning styles.

These factors will serve as the foundation for the development of progressive assessments. These assessments will be performance based, measuring application of content and skills and will include a wide variety of techniques:

(a) written products,
(b) solutions to problems,
(c) experiments,
(d) exhibitions,
(e) performances,
(f) portfolios of work,
(g) cooperative group projects, and
(h) teacher observations.

By directly measuring actual performance in a subject area, instruction will be directed toward what students need to know and need to be able to do. The assessments will be appropriate to the student's age and level of learning. They will also provide information which is useful to both the student and the teacher.

All forms of assessment are summarized numerically. Therefore, individual results can be combined to provide a variety of information about aggregate performance at the individual, school, state, and national levels.

The use of these assessments will create a variety of effects. First of all,

they will serve to broaden the curriculum and encourage the development of thinking and problem-solving skills. They will measure application skills rather than test-taking skills. On a broader scale, they will allow for a mobilization of a diverse labor force, where categorization or segmentation are eliminated and individual productivity meets personal, community, and national goals.

In order for these assessments to be most effective, their development must be congruent with the development of a new curriculum. Traditional curriculum design is being challenged by the development of technology. Technology broadens the base of study, exposing students to a wide range of subjects and enabling them to master a variety of ideas and skills.

Technology also presents new challenges to educators. What should be taught, how should it be taught and how should learning be measured?

The Partnership Foundation's curriculum is designed to provide for continuous progress in a multi-age environment. The overall instructional program includes planned sequences in four major areas:

(1) Communications,
(2) Mathematics,
(3) Environmental Settings (elements affecting an individual's surroundings), and
(4) Cultural Development.

Young children will be provided with a great deal of guidance as fundamental skills and knowledge are established. This teacher-provided direction is then progressively reduced and learning becomes more self-directed. The goal is to have students learn to work independently in accessing knowledge, information, and skills.

Instead of being limited to the basics of reading, writing, and arithmetic–all taught as separate subjects–students learn to use all subjects in real life applications. Greater accessibility to information through the use of technology offers students the opportunities to gather, analyze, evaluate, and apply data which is relevant to their needs.

Simple accessibility to a wide range of information sources does not guarantee learning, however. Critical thinking skills must be carefully developed. Students must be able to distinguish between fact and opinion, between valid and invalid information, between relevant and irrelevant data. Developing these critical thinking skills is essential in order for students to apply the ideas and skills they have mastered. By learning to approach problem solving from a variety of perspectives, they will be able to utilize the information in new ways and direct their own learning.

Students will also need to develop strong communication skills, both oral and written. The ability to communicate with people of various ages and cultures, whether in personal contact or via some technological device, is essential in the Information Age.

As students prepare for life in a global environment, they must also expand their knowledge of the world around them. They must be familiar with the social sciences and the natural sciences and be aware of their own civic and

individual responsibilities in the worldwide community.

The use of technology as a learning tool enables students to explore a wide range of information, examine relationships between seemingly unrelated areas, and gain control over their own learning as they apply that information in new ways. Computer and communications technology can also link them with other learners as they work together to solve real-life problems.

Technology forces curriculum to become broader and more flexible. It provides alternate sources of information and changes the way we approach teaching and learning. The increasing role of technology in education means that the teacher and the textbook are no longer the primary sources of information. With the variety of alternative resources available, the teacher becomes a ***manager*** of information rather than the ***presenter*** of information.

The teacher's role then becomes that of facilitator, mentor, and collaborator. The teacher guides the students in organizing information and examining it from different perspectives. In order to be effective, the teacher must be attuned to the student's developmental level through assessment and observation.

Instead of presenting information, the teacher must present learning challenges which can be met through active participation and personal initiative. These challenges must utilize techniques which require the student to engage with not only the material but also with other learners, whether in the classroom or in a distant location.

As students gain experience and skills, the teacher may utilize different guidance techniques. Younger students, for example, will require more direction and more specific learning objectives than older students as learning fundamentals are established. The older students may be able to design their own challenges and direct their own learning with only occasional encouragement from the teacher. Additional guidance may also be required as students explore new learning experiences, including new content.

The teacher must design learning challenges, using the student's perspective and natural inclinations in order to broaden the student's understanding and experience. However, the teacher must not label the student as a particular type of learner with a particular type of intelligence. Instead all learning styles and intelligences must be incorporated, expanding thestudent's ability to learn from a variety of different sources.

The teacher must also encourage the student to reflect on their own learning and on the value of the information presented. The teacher must question and challenge the student to engage in the learning process.

The teacher's role as a guide lessens as the student gains experience and skills. As students become more and more self-directed, the teacher becomes a collaborator in the learning experience, enabling the student to become an independent learner who is able to apply knowledge and skills.

With the use of technology in the classroom, the learning environment also changes. It becomes more dynamic and flexible. The use of time also becomes more flexible and efficient. As schedules are restructured, more time becomes available for learning. The pace of instruction is altered as students

pursue their learning objectives.

The teacher's responsibility then becomes one of providing standards for measurement and flexible time lines as students are guided to learn in steps and a pace appropriate to their learning styles and their cognitive abilities. Both teacher and student are fully engaged in the learning process.

The primary outcome of this program is adaptability. This adaptability applies not only to the students as individuals utilizing their developed skills in leading more productive lives and meeting community and national goals, but also to other institutions in developing programs and policies related to productivity.

Life-long learning begins in early childhood as needs and wants are interpreted. How those needs and wants are responded to establishes the beginning of societal values and fulfilling individual, community, and national goals. It also provides the building blocks for life-long learning which are reinforced and developed in a structured setting.

Driven by technology development, education will take on a new importance in human development. Once a basic foundation for life-long learning has been established, learning will be based on enhancing people's skills in relation to understanding and applicability. The importance will not be placed on the number of computers in a classroom or work environment but on the delivery and interpretation of information for utilization. Communication skills, both oral and written, will become a necessity. Analytical, quantitative, and qualitative skills will be needed to ascertain "disinformation",i.e. direct lies, misinformation, information mistakes, and entertainment-enhanced information from basic facts.

Technology can easily list the names, dates, and events for those who find it interesting. Technology will also allow for the "what if" scenarios of why a particular event took place. It will give the student an opportunity to delve into different scenarios of cause and effect and to speculate about what might have happened if a different decision had been made. Technology will then produce a learning environment where the student is able to pursue an understanding that was not available from just written text.

As technology provides a means for problem-solving through the delivery of information, the utilization of computer and communication technologies will lead to a quicker response in accomplishments. With available information sources, accepted practices will be coming from more than just scientific, mathematic, medical, or other disciplines. People will, whether connected by academic degree, career, or other interests, pursue desired information and implement that information into desired results for market. To assure a safe product, people's skills will need to be developed to analyze, qualify, and quantify information.

Global competition will certainly increase in the information age. How that competition will be met depends on education. Learning to be productive will produce more than simple solutions for complex problems. It will produce new products and new markets. To stimulate those products and markets, a new emphasis on education must take place, an emphasis that allows for the

life-long pursuit of learning. Education is a journey , not a destination.

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